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28 September 2006

Mr. Robert Schneider, Chairman
Ms. Pamela Creedon, Executive Officer
Mr. Jack DelConte, Principal WRCE
Ms. Wendy Wyels, Environmental Program Manager
Mr. Timothy O'Brien, Engr. Geol.
Regional Water Quality Control Board
Central Valley Region
11020 Sun Center Drive, Suite 200
Rancho Cordova, CA 95670-6144

VIA: Electronic Submission
Hardcopy if Requested

RE: Waste Discharge Requirements for Oakwood Lake Water District and Beck Properties, Inc., Wastewater Treatment Plant, San Joaquin County

Dear Messrs. Schneider, DelConte, O'Brien and Mesdames Creedon and Wyels:

The California Sportfishing Protection Alliance, Watershed Enforcers and San Joaquin Audubon (CSPA) has reviewed the Central Valley Regional Water Quality Control Board's (Regional Board) tentative waste discharge requirements (hereinafter Order or Permit) for Oakwood Lake Water District and Beck Properties, Inc., Wastewater Treatment Plant (Discharger) and has serious concerns regarding the Order.

CSPA requests status as a designated party for this proceeding. CSPA is a 501(c)(3) public benefit conservation and research organization established in 1983 for the purpose of conserving, restoring, and enhancing the state's water quality and fishery resources and their aquatic ecosystems and associated riparian habitats. CSPA has actively promoted the protection of water quality and fisheries throughout California before state and federal agencies, the State Legislature and Congress and regularly participates in administrative and judicial proceedings on behalf of its members to protect, enhance, and restore California's degraded surface and ground waters and associated fisheries. CSPA members reside, boat, fish and recreate in and along waterways throughout the Central Valley, including San Joaquin County.

Our specific comments are as follows:

1. The Order subverts the Water Quality Enforcement Policy

California Water Code (CWC) Section 13000 states, in part, that Legislature declared "…that the quality of all the waters of the state shall be protected for use and enjoyment by the people of the state." CWC Section 13000 shows the Legislature intent

that "state must be prepared to exercise its full power and jurisdiction to protect the quality of the waters in the state from degradation originating inside or outside the boundaries of the state;" In order fulfill the Legislature intent to protect water quality, the State Water Resources Control Board adopted the Water Quality Enforcement Policy (Enforcement Policy) February 2002.

The Enforcement Policy states, "The primary goal of this Enforcement Policy is to create a framework for identifying and investigating instances of noncompliance, for taking enforcement actions that are appropriate in relation to the nature and severity of the violation, and for prioritizing enforcement resources to achieve maximum environmental benefits. Toward that end, it is the intent of the SWRCB that the RWQCBs operate within the framework provided by this Policy."

The Enforcement Policy, page 13, identifies groundwater pollution as a priority violation for which the appropriate enforcement action includes an administrative civil liability order. The proposed Order indicates, Findings No. 51 and 52, that the existing WWTP has polluted the underlying groundwater. However, the proposed Order takes no enforcement action for the groundwater pollution and does not require the Discharger to perform any cleanup activities. Instead, the Order authorizes the WWTP expansion project that will increase the existing capacity nine fold from 15,000 gpd to 136,200 gpd, which will exacerbate the pollution of the underlying groundwater. The proposed Order completely subverts the Legislative intent for water quality protection through pollution prevention into that of pollution permission that rewards those that cause degradation. It is inappropriate for the Regional Board to bring this Order forward without first taking an enforcement action for the Discharger's historical pollution.

2. Alternate disposal options were not considered

Finding No. 9 states, "The Dischargers have reported that they intend to connect to the City of Manteca wastewater collection system when it is available. The RWD reports, based on conversations with the City of Manteca, treatment capacity should be available in 10 to 15 years." The Basin Plan encourages Regional WWTPs in lieu of individual systems. The proposed Order does not require the Discharger to connect to either the City of Manteca's WWTP, the City of Lathrop WWTP, the City of Stockton's WWTP or the City of Tracy's WWTP; all of which have collection system situated within 3 to 7 miles of the proposed community development. The Discharger could easily accommodate the transfer of sewage with a pump station and force main system.

Rather then require the Discharger use a regional wastewater facility, the Order allows the Discharger to expand the existing individual waste treatment system. All the cited WWTP are within the same groundwater basin, which has over drafted groundwater supplies. These Dischargers have all been allowed to expand their respective facilities and to degrade water quality. The Order fails to consider the cumulative effect that multiple wastewater discharges will have on the groundwater basin. For example, the Order is silent on the fact that all these collection systems discharge raw sewage to the groundwater. When collections systems fail they may overflow and discharge to surface water; however, broken pipes and open joints are usually left to continue sewage leaking

to groundwater for years. The Regional Board files are resplendent with spill reports that numerous spills are the result of collection system failures. Frequently, these spill reports claim that the sewage spill was "contained on land." In areas of shallow groundwater, a discharge to land is a discharge to groundwater.

The Basin Plan requires a five-foot separation between the groundwater and septic tank systems. Septic tank effluent has a much higher level of treatment then the raw sewage in the collection system. According to Finding No. 47, groundwater is, at least seasonally, two feet below the ground surface. The Order fails to address groundwater degradation from the collection systems within this groundwater basin that will result from the ongoing discharge of raw sewage into the groundwater. The Order fails to require that a five-foot separation be maintained between the groundwater and the collection system because all collection systems are known to "leak". There are some areas, such as the Oakwood, that simply are not well suited for waste disposal systems.

3. The Order contains inadequate information regarding WWTP's treatment system

Finding No. 14 states, "The treatment plant will provide tertiary treatment and disinfection using a sequential batch reactor (SBR) system. The treatment system consists of screening, SBR, flow equalization, sand filtration, disinfection, effluent pumping, and land application. Sludge will be digested and stored on-site pending off-site disposal." However, this description of the WWTP is too generic in order to allow the public to make meaningful comments. The Order fails to provide a detailed description of WWTP in either the Order or the attached information sheet. For example, will the WWTP have multiple filter units? What is the maximum hydraulic loading rate per square foot of filter media? This basic wastewater information must be included in the Order for the public to know if WWTP is actually capable of "tertiary treatment".

4. The Order fails to include discharge specifications for the proper operation and maintenance of land application areas

Finding 31 states in part that, "Land application areas will be planted with turf grass, shrubs, and trees. Most irrigation will occur through drip irrigation lines installed approximately one foot below the ground surface (Geoflow). Some spray irrigation will be used to apply wastewater..."

This Finding does not accurately describe the purpose of land application areas. "Land application areas" are actually an integral part of the wastewater treatment facility and are specifically for the treatment of waste. Land application areas must be operated and maintained in a fashion that ensures the highest and most consistent waste treatment possible. While we encourage the Regional Boards' recycling efforts, land application areas must remain first and foremost as treatment units for waste removal. Historically, crops raised on land application areas have not been selected for maximum waste removal. Selection of crops with a lower waste removal rates but which may be more profitable is not BPTC and fails to comply with Resolution 68-16. The tentative Order

must require that crop selection, crop management and harvest are based on the highest obtainable waste treatment/removal rates.

The term agronomic rate is not defined in the Order. Finding No.31 states, "Effluent will be applied at agronomic rates for both nitrogen and water application." According to Finding No. 54 "The RWD presents a discussion of nitrogen compounds contained in applied recycled water. Approximately 1,675 pounds per year (107 pounds per acre/year) will be applied in Phase I; approximately 4,146 pounds per year (130.6 pounds per acre/year) will be applied in Phase II." This finding indicates that annual application cycle is used to determine agronomic uptake rate for nitrogen, which is incorrect. It is known that plants uptake rate for nitrogen varies significantly on seasonal basis. The wastewater nitrogen concentration will generally be within a constant range of less than 10 mg/L, if properly operated, through out the year. Consequently, the application of wastewater will at times not be sufficient for the necessary plant growth and the plants will suffer from a nitrogen deficient condition. Later in that year (late summer and fall period), plant uptake is much lower and same wastewater application will result in too much nitrogen being applied to the land. The Order does not account for seasonal variability in nitrogen uptake rates for the selected crops, particularly during the late summer and early fall period when "irrigation" is high in order to maximize wastewater disposal, (see water balance).

According to *Wastewater Engineering Treatment and Reuse*, Metcalf & Eddy, 2003, the optimum bacterial degradation of organic wastes, the ratio of carbon to nitrogen to phosphorus (C:N:P Ratio) should be 20:5:1. The percolation of wastewater containing nitrogen but with disproportionately low concentrations of total organic carbon may retard denitrification and, absent sufficient aeration, may also retard nitrification. In anaerobic soil and groundwater conditions, concentrations of nitrogen in the form of ammonia can leach and discharge to groundwater. The Order fails to require that the Discharger maintain the proper ratio of organic waste need for optimum treatment. The Order does not even require the Discharger to monitor for the carbon and phosphorus. For that matter, the RWD failed to disclose what the actual concentration was for these wastes in the effluent.

5. Order fails to demonstrate that chlorination is BPTC

Finding No. 17 states, "Disinfection will be performed by addition of hypochlorite to the sand filter effluent. Duplex hypochlorite feed units will be used for redundancy. The contact basin will be lined with a synthetic liner and will be baffled to maximize contact time."

Chlorination results in an increase in TDS and chloride concentrations in the effluent. In addition, the chlorination of wastewater is known to create trihalomethanes. Ultraviolet Disinfection (UV) is a proven treatment technology, U.S. EPA Wastewater Technology Fact Sheet Disinfection, September 1999. UV systems are known to have the following advantages over chemical disinfection:

a. UV disinfection is effective at inactivating most viruses, spores, and cysts.
b. UV disinfection is a physical process rather than a chemical disinfectant, which eliminates the need to generate, handle, transport, or store toxic/hazardous or corrosive chemicals.
c. There is no residual effect that can be harmful to humans or aquatic life.
d. UV disinfection is user-friendly for operators.
e. UV disinfection has a shorter contact time when compared with other disinfectants (approximately 20 to 30 seconds with low-pressure lamps).
f. UV disinfection equipment requires less space than other methods.

Numerous WWTP in the Central Valley employ UV disinfection, which does not add chloride and thus does not create trihalomethanes. For example, the City of Lodi, situated twenty minutes north, uses UV disinfection at the White Slough's WWTP and the adjacent community of Lathrop plans to change from chlorination to UV disinfection. Other disinfection systems are also available that do not use chlorination that generates trihalomethanes. Therefore, the Discharger's proposed disinfection system using chlorination does not comply with BPTC.

6. Order fails to demonstrate that a single liner is BPTC

Finding No. 24 states, "Treatment ponds located at the treatment facility are described below. Recycled water storage ponds are described in the "Recycled Water Discharge" portion of this Order. A summary of the treatment facility ponds, their size, and their liners is presented in the table below:

Pond	Size	Use	Liner
SBR Pond	200,000 gallons	Wastewater Treatment	HDPE 40 mil [1]
Secondary Effluent	49,000 gallons	Flow Equalization	HDPE 40 mil [1]
Effluent Equalization	300,000	Flow Equalization/Storage	HDPE 40 mil [1]
Sludge Storage	178,000	Recycled Water Storage	HDPE 40 mil [1]
Emergency Storage	233,000 gallons	Emergency Storage	HDPE 40 mil [1]

1 HDPE 40-mil denotes High Density Polyethylene, or equivalent."

The Order does not indicate if the capacity listed above is with or without two-feet of freeboard.

The proposed WWTP does not contain the necessary redundant features necessary to comply with CCR Title 22 regulations for tertiary treated recycled water and relies on a single sequence batch reactor (SBR) unit for biological treatment and clarification, which occurs in the SBR. The CCR Title 22 Section 60341 requires long-term storage for partially treated wastewater for at least 20-days when multiple units and standby equipment is not available. The Order indicates that the WWTP does not have a backup SBR unit. The maximum flow rate for the WWTP specified in Discharge Specification

No. B.3. is 136,200 gpd. The emergency storage basin capacity is only 233,000 gallons, and is inadequate storage capacity by at least a factor of ten (i.e. 20 days X 136,200 gpd).

Without a redundant SBR unit, how can the SBR basin single liner be inspected and repaired if necessary? This Finding also indicates that sludge storage basin will be used for recycled water storage. Under Title 22 regulation, it is not permissible to commingle sludge/biosolids and recycled water.

The groundwater underlying the WWTP is polluted as described in Finding No. 51 and 52. The wastewater in the treatment/storage units will exceed water quality objectives and any leakage or overflow will exacerbate polluted groundwater conditions. The WWTP relies on single 40-mil high-density polyethylene, or equivalent, to prevent waste discharge from the listed treatment/storage units. However, single liner is simply antiqued technology with a proven track record of failure. (G. Fred Lee, PhD, PE, DEE, Deficiencies in Subtitle D Landfill Liner Failure and Groundwater Pollution Monitoring)

A single liner with hydraulic connectivity of $1X10^{-6}$ cms/sec (i.e. one foot per year) will likely discharge waste to the underlying shallow groundwater the first year of operation. In comparison to a single liner, a SBR package plant (numerous SBR package plant exist in California) with above ground tanks on concrete containment structures will not discharge wastewater to the soil. In addition, multiple liners systems equipped with leachate collection system or its "engineered equivalent" have been used successfully in the Central Valley for years.

The Discharger's single liners for the SBR and Sludge lagoon will result in the discharge of waste that exacerbates the existing pollution of the underlying groundwater and cannot comply with State Board Resolution No. 68-16. While the Regional Board may not specify the method of treatment need for compliance, the Regional Board is required to ensure the WWTP complies with BPTC in developing limitations and discharge specifications (see Finding No. 59). The Order fails to include Discharge Specifications that limits the amount of leachate to comparable treatment systems, "i.e., engineered equivalent" that meet BPTC. The proposed single liners are not technological compliant with BPTC.

7. Order fails to restrict application of designated waste thereby creating pollution

CWC Section 13173 states, "Designated waste," means either of the following:
(a) Hazardous waste that has been granted a variance from hazardous waste management requirements pursuant to Section 25143 of the Health and Safety Code.
(b) Nonhazardous waste that consists of, or contains, pollutants that, under ambient environmental conditions at a waste management unit, could be released in concentrations exceeding applicable water quality objectives or that could reasonably be expected to affect beneficial uses of the waters of the state as contained in the appropriate state water quality control plan.

According to Finding No. 27, the effluent concentration for TDS is approximately 710 mg/L. Finding No. 44 indicates that the background water quality, based on the current potable water supply quality sampled in 2005, is 410 mg/L TDS. The groundwater underlying the WWTP and land application area contain a TDS concentration range from 411 to 1,000 mg/L TDS. Therefore, the groundwater quality underlying some of the land application areas is already degraded for TDS. The effluent concentration exceeds the water quality objective and the background water quality data presented in the Order. The land application, Geoflow, will discharge the wastewater into the groundwater and will be "expected to affect beneficial uses of the waters of the state." The WWTP's effluent is properly classified, for this site, as a designated waste and will cause pollution. CWC Section 13050 defines pollution as "an alteration of the quality of the waters of the state by waste to a degree which unreasonably affects either of the following: (A) The waters for beneficial uses. (B) Facilities which serve these beneficial uses."

8. The Order must prohibit discharge when soils are saturated

Recycled Water Specification No. E.11 states, "Irrigation with recycled water shall not be performed within 24 hours of a forecasted storm, during or within 24 hours after any precipitation event, nor when the ground is saturated."

Finding No. 47 states, "Groundwater models prepared for the area by Condor Earth Technologies and Kleinfelder predicted groundwater elevations ranging from 2.8 to 4.3 feet mean sea level (msl) with groundwater elevations reaching 8 to 10 feet msl in wet years. With a final ground surface elevation of approximately 12 feet msl, the depth to groundwater below the surface is likely to vary from 2 to 10 feet."

The Order fails to limit wastewater application during time periods of high groundwater. Soils may be saturated by rainfall and irrigation but also by high groundwater conditions. The Order fails to consider the capillary effect that the soil has on the groundwater. The water will be transported up through the soil pore space and will wet the soil up to several feet (depending on soil type) above the groundwater elevation. One foot below the ground surface is the location of the Geoflow system, which will discharge into the saturated soil condition. In order to ensure adequate treatment and prevent discharges to surface waters, irrigation of recycled water to land application areas when groundwater elevations are within 5 feet of the surface must be prohibited. The Basin Plan requires a five-foot separation between subsurface disposal systems and Geoflow.

9. The Order must revise the total coliform effluent limitation

State Water Board Order No. WQO-2003-0014 upheld the Regional Water Board's interpretation of the Basin Plan with respect to implementation of the Bacteria objective, stating: "The Basin Plan contains a water quality objective for bacteria that applies to groundwater that states: 'In groundwaters used for domestic or municipal supply (MUN) the most probable number of coliform organisms over any seven-day

period shall be less than 2.2/100 mL.' Since the groundwater is designated for municipal or domestic supply, a groundwater limitation for coliform of less than 2.2MPN/100 mL is appropriate."

The groundwater underlying the WWTP and land application is polluted for total coliform organisms. The Geoflow is situated approximately one foot below the ground surface and the groundwater elevation is two feet below the surface. The Geoflow for all intents and purposes discharge wastewater directly into the groundwater. Effluent Limitations No. 2.c states, "No sample shall exceed an MPN of 240 total coliform bacteria per 100 milliliters." The discharge of waste containing a MPN more than 2.2 total coliform bacteria per 100 milliliters will exacerbate the pollution. The Effluent limitation must be revised so that the total coliform organism concentration is less than 2.2MPN/100 mL at all times.

10. The Discharger submitted an incomplete RWD

Finding No. 53 states, "The monitoring network is not adequate to evaluate groundwater quality at all proposed storage and/or application areas. Therefore, it is appropriate that the Discharger install additional groundwater monitoring wells, continue groundwater monitoring, and complete a technical analysis of groundwater monitoring data to determine final background concentrations."

CWC Section 13260 (a) states, in part, "All of the following persons shall file with the appropriate regional board a report of the discharge, containing the information which may be required by the regional board: (1) Any person discharging waste, or proposing to discharge waste, within any region that could affect the quality of the waters of the state, other than into a community sewer system."

Order No. 5-01-113 was adopted in 2001. Consequently, the Discharger has had more than five years in which to collect groundwater data to complete a technical analysis of groundwater monitoring data to determine final background concentrations and provide the other listed information. In addition, the Discharger failed to supply the following information required for a complete RWD:

a. All waste constituents to be discharged (see Finding No. 67 and 68);
b. The background quality of the uppermost layer of the uppermost aquifer;
c. The background quality of other waters that may be affected (discharges to reclamation canals, irrigation channels and surface waters);
d. The detailed underlying hydrogeology conditions such as hydraulic conductivity of the soils, capillary rise, groundwater gradient; effects of pumping has groundwater, well map showing locations of all water wells including springs and isolated wetlands within one mile of the WWTP/land application;
e. How treatment and control measures are justified as best practicable treatment and control;
f. The extent the discharge will impact the quality of each aquifer; and

g. The expected obtainable degree of degradation below water quality objectives

It is the Discharger's responsibility to submit a complete RWD. In that the Discharger may contend that their project will be harmed by a delay, they have no one to blame but themselves and have been afforded adequate time (five-years) to develop a complete RWD. A complete RWD must be submitted before staff can draft an Order that complies with the CWC and Basin Plan.

11. A BPTC evaluation must be conducted and submitted prior to Permit issuance

The Order contends that a BPTC evaluation of the Discharger's treatment system will be conducted in the future to show compliance Resolution 68-16 BPTC. However, the Discharger WWTP already fails to comply with BTPC as follows:

a. Effluent exceeds water quality objectives and the groundwater is already been polluted by the Discharger,
b. Fails to require the Discharger to reduce salinity in the effluent to prevent degradation and does not require the Discharger to conduct a pollution prevention plan or pretreatment;
c. Uses a single HDPE lined treatment structures under the SBR and sludge basin that will degrade groundwater;
d. Fails to require continuous monitoring and have these devices tried to alarms and automatic flow diversion systems to prevent system bypass or overflow;
e. Effluent storage pond liner systems consisting of a single 40-mil HDPE;
f. Disinfection of treated effluent with chlorination and not UV;
g. Recycled water application rates which degrade water quality;
h. Geoflow discharges when soils are saturated and directly into groundwater without

The Order is for a new facility and authorizes a significant expansion. The facility has not determined Best Practicable Treatment and Control (BPTC). In order to comply with Resolution 68-16, the Discharger must demonstrate that the facility complies with BPTC, based upon current technology. Unfortunately, the Order postpones a BPTC evaluation until after the facility is operating. CSPA believes the Discharger must submit a BPTC evaluation as a part of the Report of Waste Discharge so that the information may be incorporated into the Order. Based upon our review, the Discharger has utilized outdated technology such, as single liners and chlorination, which clearly fails to comply with BPTC.

Our review of recent Regional Board WDRs reveals that dischargers are routinely granted the maximum assimilative capacity of underlying groundwater; i.e., up to the water quality objective. The Regional Board has never evaluated BPTC measures and

reduced groundwater limitations to less than the maximum assimilative capacity. The Regional Board's routine allowance of all of the assimilative capacity without conducting BPTC evaluations prior to permit issuance is, in effect, an underground regulation in violation or the California Water Code.

12. Lack of a Legally Defensible Antidegradation Analysis

There is no antidegradation analysis in the proposed Order. Conclusory, unsupported and undocumented statements cannot serve in lieu of a legally required antidegradation analysis. The Order allows the expansion of the WWTP by a factor of nine times the current flow rate contained in the previous Order No. 5-01-113.

The Fact Sheet states, "Resolution 68-16 is applied on a case-by-case, constituent-by-constituent basis in determining whether a certain degree of degradation can be justified. It is incumbent upon the Discharger to provide technical information for the Regional Board to evaluate that fully characterizes:

a. All waste constituents to be discharged:
b. The background quality of the uppermost layer of the uppermost aquifer:
c. The background quality of other waters that may be affected;
d. The underlying hydrogeologic conditions;
e. Waste treatment and control measures;
f. How treatment and control measures are justified as best practicable treatment and control;
g. The extent the discharge will impact the quality of each aquifer; and
h. The expected degree of degradation below water quality objectives. Fact Sheet, p. 3.

The Fact Sheet then admits, "Groundwater monitoring has been conducted at the site but the area monitored is large, no systematic program for characterization was implemented, and some data was collected without sampling and analysis plans or quality assurance plans; therefore staff are unable to establish the most appropriate groundwater limits. In addition, certain aspects of wastewater treatment and control practices may not be justified as representative of Best Practicable Treatment and Control (BPTC). The Fact Sheet then observes, "[t]he proposed Order establishes interim receiving water limitations to assure protection of the beneficial uses of groundwater of the State pending the completion of certain tasks and provides time schedules to complete specified tasks. During this period, degradation may occur from certain constituents, but can never exceed water quality objectives (or natural background water quality should it exceed objectives) or cause nuisance. Fact Sheet, p. 3.

In other words, staff doesn't know what background water quality is, the appropriate effluent limits or whether BPTC is being applied but is proposing to allow some unknown level of degradation to occur justified by some unknown benefit on the assumption that the Discharger will do in the future what is was legally responsible to do

before the permit was issued. This is a blatant violation of the state's antidegradation policy.

California's antidegradation policy is composed of both the federal antidegradation policy and the State Board's Resolution 68-16. (State Water Resources Control Board, Water Quality Order 86-17, p. 20 (1986) ("Order 86-17); Memorandum from William Attwater, SWRCB to Regional Board Executive Officers, "federal Antidegradation Policy," pp. 2, 18 (Oct. 7, 1987) ("State Antidegradation Guidance").) As part of the state policy for water quality control, the antidegradation policy is binding on all of the Regional Boards. (Water Quality Order 86-17, pp. 17-18.) Implementation of the state's antidegradation policy is guided by the State Antidegradation Guidance, SWRCB Administrative Procedures Update 90-004, 2 July 1990 ("APU 90-004") and USEPA Region IX, "Guidance on Implementing the Antidegradation Provisions of 40 CFR 131.12" (3 June 1987) (" Region IX Guidance"), as well as Water Quality Order 86-17.

The Regional Board must apply the antidegradation policy whenever it takes an action that will lower water quality. (State Antidegradation Guidance, pp. 3, 5, 18, and Region IX Guidance, p. 1.) Application of the policy does not depend on whether the action will actually impair beneficial uses. (State Antidegradation Guidance, p. 6. Actions that trigger use of the antidegradation policy include issuance, re-issuance, and modification of NPDES and Section 404 permits and waste discharge requirements, waiver of waste discharge requirements, issuance of variances, relocation of discharges, issuance of cleanup and abatement orders, increases in discharges due to industrial production and/or municipal growth and/other sources, exceptions from otherwise applicable water quality objectives, etc. (State Antidegradation Guidance, pp. 7-10, Region IX Guidance, pp. 2-3.) Both the state and federal policies apply to point and nonpoint source pollution. (State Antidegradation Guidance p. 6, Region IX Guidance, p. 4.) The proposed Order allows the expansion of the WWTP by a factor of nine times the current flow and will degrade the underlying groundwater, which is already polluted for a number of waste constituents.

Even a minimal antidegradation analysis would require an examination of: 1) existing applicable water quality standards; 2) ambient conditions in receiving waters compared to standards; 3) incremental changes in constituent loading, both concentration and mass; 4) treatability; 5) best practicable treatment and control (BPTC); 6) comparison of the proposed increased loadings relative to other sources; 7) and assessment of the significance of changes in ambient water quality. A minimal antidegradation analysis must also analyze whether: 1) such degradation is consistent with the maximum benefit to the people of the state; 2) the activity is necessary to accommodate important economic or social development in the area; 3) the highest statutory and regulatory requirements and best management practices for pollution control are achieved; and 4) resulting water quality is adequate to protect and maintain existing beneficial uses. A BPTC technology analysis must be done on an individual constituent basis; while tertiary treatment may provide BPTC for pathogens, dissolved metals and salts may simply pass through.

Any antidegradation analysis must comport with implementation requirements in State Board Water Quality Order 86-17, State Antidegradation Guidance, APU 90-004 and Region IX Guidance. The conclusory, unsupported, undocumented statements in the Permit are no substitute for a defensible antidegradation analysis.

The antidegradation review process is especially important in the context of waters protected by Tier 2. See EPA, Office of Water Quality Regulations and Standards, Water Quality Standards Handbook, 2nd ed. Chapter 4 (2nd ed. Aug. 1994). Whenever a person proposes an activity that may degrade a water protected by Tier 2, the antidegradation regulation requires a state to: (1) determine whether the degradation is "necessary to accommodate important economic or social development in the area in which the waters are located"; (2) consider less-degrading alternatives; (3) ensure that the best available pollution control measures are used to limit degradation; and (4) guarantee that, if water quality is lowered, existing uses will be fully protected. 40 CFR § 131.12(a)(2); EPA, Office of Water Quality Regulations and Standards, Water Quality Standards Handbook, 2nd ed. 4-1, 4-7 (2nd ed. Aug. 1994). These activity-specific determinations necessarily require that each activity be considered individually.

For example, the APU 90-004 states:

> "Factors that should be considered when determining whether the discharge is necessary to accommodate social or economic development and is consistent with maximum public benefit include: a) past, present, and probably beneficial uses of the water, b) economic and social costs, tangible and intangible, of the proposed discharge compared to benefits. The economic impacts to be considered are those incurred in order to maintain existing water quality. The financial impact analysis should focus on the ability of the facility to pay for the necessary treatment. The ability to pay depends on the facility's source of funds. In addition to demonstrating a financial impact on the publicly – or privately – owned facility, the analysis must show a significant adverse impact on the community. The long-term and short-term socioeconomic impacts of maintaining existing water quality must be considered. Examples of social and economic parameters that could be affected are employment, housing, community services, income, tax revenues and land value. To accurately assess the impact of the proposed project, the projected baseline socioeconomic profile of the affected community without the project should be compared to the projected profile with the project…EPA's Water Quality Standards Handbook (Chapter 5) provides additional guidance in assessing financial and socioeconomic impacts"

There is nothing resembling an economic or socioeconomic analysis in the Order. There are viable alternatives that have never been analyzed. The Discharger could continue with current land disposal or connect to a regional facility. The evaluation contains no comparative costs. As a rule-of-thumb, USEPA recommends that the cost of

compliance should not be considered excessive until it consumes more than 2% of disposable household income in the region. This threshold is meant to suggest more of a floor than a ceiling when evaluating economic impact. In the Water Quality Standards Handbook, USEPA interprets the phrase "necessary to accommodate important economic or social development" with the phrase "substantial and widespread economic and social impact."

The antidegradation analysis must discuss the relative economic burden as an aggregate impact across the entire region using macroeconomics. Considering the intrinsic value of the Delta to the entire state and the potential effects upon those who rely and use Delta waters, it must also evaluate the economic and social impacts to water supply, recreation, fisheries, etc. from the Discharger's degradation of water quality in the Delta. Nor has the case been made that there is no alternative for necessary housing other than placing it where its wastewater must discharge directly into sensitive but seriously degraded waters. It is unfortunate that the agency charged with implementing the Clean Water Act has apparently decided it is more important to protect the polluter than the environment.

There is nothing in the Order resembling an alternatives analysis evaluating less damaging and degrading alternatives. Unfortunately, the Order fails to evaluate and discuss why there is no alternative other than discharging to surface waters. Other communities have successfully disposed of wastes without discharging additional pollutants to degraded rivers. The discharger certainly has the option of purchasing offsets. A proper alternatives analysis would cost out various alternatives and compare each of the alternatives' impacts on beneficial uses.

There is nothing resembling an analysis buttressing the unsupported claim that BPTC is required. An increasing number of wastewater treatment plants around the country and state are employing reverse-osmosis (RO), or even RO-plus. Clearly, micro-filtration can be considered BPTC for wastewater discharges of impairing pollutants waters already suffering serious degradation. If this is not the case, the antidegradation analysis must explicitly detail how and why run-of-the-mill tertiary system that facilitate increased mass loadings of impairing constituents can be considered BPTC.

The Order indicates that the discharge will degrade water quality for TDS. In order to comply with Resolution 68-16, the Discharger must demonstrate that the WWTP meets BPTC for TDS. The Discharger has failed to implement BPTC in that the Discharger has not selected treatment systems that qualify as BPTC. For example, UV systems are widely used by the industry and to comply with Regional Board Order for the disinfection of wastewater. The Order indicates that the Discharger will use chlorination to disinfect the wastewater. Chlorination increases that amount of chlorides in the wastewater. In comparison, UV systems reduce the concentration of chlorides in the effluent and therefore also reduce the concentration of TDS. Additional chemicals are containing chloride will be used by the WWTP to enhance coagulation. Chlorination of wastewater is known to create trihalomethane. The UV system would also reduce the concentration of trihalomethane in the effluent compared to chlorination. Given the site-

specific factors, including shallow groundwater that is polluted, chlorination does not qualify as BPTC.

In the case of Thunder Valley, Placer County, the Discharger employed an RO system to treat the water supply in order to reduce TDS. The brine was hauled offsite for disposal. The City of Lathrop *Final EIR, Lathrop Water, Wastewater, and Recycled Water Master Plan* identifies "wellhead treatment" as a mitigation measure to reduce salinity discharges. It is obvious that BPTC measures for TDS are available.

There is nothing in the Order resembling an analysis that ensures that existing beneficial uses are protected and in fact have been already polluted by the Discharger existing WWTP. While the Order identifies several constituents that are may impair the receiving waters, it fails to discuss how and to what degree the identified beneficial uses will be additionally impacted by the discharge. Nor does the Order analyze the incremental and cumulative impact of increased loading of non-impairing pollutants on beneficial uses. In fact, there is almost no information or discussion on the composition and health of the identified beneficial uses. Any reasonably adequate antidegradation analysis must discuss the affected beneficial uses (i.e., numbers and health of the aquatic ecosystem; extent, composition and viability of agricultural production; people depending upon these waters for water supply; extent of recreational activity; etc.) and the probable effect the discharge will have on these uses.

The State Board has clearly articulated its position on increased mass loading of impairing pollutants. In Order WQ 90-05, the Board directed the San Francisco Regional Board on the appropriate method for establishing mass-based limits that comply with state and federal antidegradation policies. That 1990 order stated "[I]n order to comply with the federal antidegradation policy, the mass loading limits should also be revised, based on mean loading, concurrently with the adoption of revised effluent limits. The [mass] limits should be calculated by multiplying the [previous year's] annual mean effluent concentration by the [four previous year's] annual average flow. (Order WQ 90-05, p. 78). USEPA points out, in its 12 November 1999 objection letter to the San Francisco Regional Board concerning Tosco's Avon refinery, that '[a]ny increase in loading of a pollutant to a water body that is impaired because of that pollutant would presumably degrade water quality in violation of the applicable antidegradation policy."

The Order allows for nine fold increase in mass loading of waste, most of which was not even sampled and analyzed for in the RWD. Unsupported conclusory claims that the Permit somehow complies with State Board Resolution 68-16 in the absence of a defensible reasonable potential analysis cannot comply with regulatory requirements and cannot be protective of an already degraded groundwater basin.

13. The Reasonable Potential Analysis is inadequate and Groundwater Limitations are not protective

The proposed Order fails to include any reasonable potential analysis for determining protective groundwater limitations. In this case the shallow groundwater is

already polluted for a number of constituents by the Discharger and therefore has no assimilative capacity for further degradation. However, the Order inexplicably allows for addition degradation and pollution.

Beyond the standard list of potential constituents in the effluent (i.e., TDS, nitrogen compounds, salinity compounds, total coliform organisms, and trihalomethanes), other potential pollutants must be evaluated in any defensible reasonable potential analysis. We have attached a brief review of the constituents found in several domestic water supply systems in the Central Valley in order to indicate that there exist a potential for numerous other contaminates to exist in the effluent. See Attachment A. The Permit must discuss the presence and concentration of potential constituents in the source water and effluent and contain a defensible reasonable potential analysis.

We again note that the Regional Board's orders for Non-15 facilities (Sacramento Office) adopted over the past several years all contain the same groundwater limitations, which are set at the water quality objective or in other words the maximum assimilative capacity of the water body for each particular constituent regardless of BPTC measures employed or available. These constituents (TDS, nitrogen compounds, salinity compounds, total coliform organisms, and trihalomethanes) are the same in each Order regardless of the treatment systems used, BPTC available or the quality of the site's groundwater. We have not seen a single Order in past year, in which the groundwater limitation has actually been, reduced to less than the maximum assimilative capacity despite the Regional Boards empty assurances that a BPTC evaluation will be conducted at some future date. Nor, have we found that proper reasonable potential analyses have been conducted in order to justify the groundwater limitations or, for that matter, that all the chemical constituents (see Finding No. 67 & 68) are even monitored for in the wastewater. The Regional Boards application of a boilerplate groundwater limitation is simply an illegal form of underground regulations, which are intended to subvert Resolution No 68-16 and prevent the implementation of BPTC.

14. The Monitoring and Reporting Program is inadequate

Monitoring Program fails to require the Discharger to monitor for all waste constituents that may impact the groundwater (see Finding No.67 & 68). The Order contends that the Discharger will have alarms and continuous monitoring equipment to void upsets; however, the Order does not require continuous monitoring for chlorine, pH and ammonia. Continuous monitoring equipment is relatively inexpensive and is reported to be BPTC. The monitoring does not require the Discharger to report fertilizer application or other soil amendments with the nitrogen loading calculations. Therefore, the amount of nitrogen cannot accurately be monitored. The same constituents monitored in the effluent must be sampled in the influent if removal rates are to be calculated and are necessary in order to show that WWTP is operated properly.

Thank you for considering these comments. If you have questions or require clarification, please don't hesitate to contact us.

Sincerely,

Bill Jennings, Executive Director
California Sportfishing Protection Alliance

Attachment A

A Brief Review of Constituents in Several Domestic Water Systems in the Central Valley

City of **Modesto and Empire** Domestic Water System - May 2005 report

Drinking Water Sources

Aluminum - high value is 0.20 mg/l (200 μg/l) – exceeds freshwater ambient water quality criteria of 87 μg/l, the California Secondary MCL of 200 μg/l and the Federal Secondary MCL of 50 μg/l.

Arsenic – high value is 13 μg/l and the average value is 3.75 μg/l – exceeds the Federal MCL of 10 μg/l, there is an OEHHA PHG of 0.004 μg/l and a USEPA Integrated Risk Information System (IRIS) of 0.02 μg/l.

Barium – high value of 0.26 mg/l (260 μg/l) – exceeds the Basin Plan maximum concentration water quality objective of 100 μg/l for Delta waters and the American River. Does not exceed other criteria or standards.

Nitrate (N) – high value of 9.65 mg/l is close to the primary MCL of 10 mg/l.

Tetrachloroethylene (PCE) – high value of 4.2 μg/l – exceeds a CTR standard of 0.8 μg/l.

1,1,2 trichloroethane – high value of 1.0 μg/l – exceeds the NTR standard of 0.38 μg/l.

copper – high value of 60 μg/l – with a hardness of 120 mg/l, exceeds the CTR standard of 11 μg/l (4-day average) and 17 μg/l (1-hour average).

Silver – high value of 2.30 μg/l does *not* exceed the ambient criteria of 5.6 μg/l.

Specific Conductance (EC) – high value of 1,600 μmhos/cm exceeds the agricultural goal of 700 μmhos/cm, the secondary MCL of 900 μmhos/cm.

Zinc – high value of 180 mg/l (180,000 μg/l) – exceeds the CTR standards of 140 μg/l (4-day average) and 140 μg/l (1-hour average).

Dichlorodiflouromethane (Freon 12) was measured at 1.40 μg/l exceeding U.S. EPA's ambient water quality criteria for public health effects for water and fish consumption of 0.19 μg/l.

The drinking water distribution system - exceeded the total trihalomethane MCL of 80 μg/l with a maximum value of 81μg/l.

Bromodichloromethane was measured at a maximum of 3.7 μg/l above the CTR standard of 0.56 μg/l.

Copper was measured at the tap at a 90th percentile value of 0.025 mg/l (25 μg/l) above the CTR standard of 11 μg/l (4-day average) and 17 μg/l (1-hour average).

The **Salida** Domestic Water System - May 2005 report

Drinking Water Sources – the minimum measured hardness was 45 mg/l.

Arsenic – high value is 9.0 μg/l and the average value is 6.4 μg/l – exceeds an OEHHA PHG of 0.004 μg/l and a USEPA Integrated Risk Information System (IRIS) of 0.02 μg/l – does *not* exceed the MCL.

Water Distribution System

Chlorine was measured at a high of 1.36 mg/l and an average of 0.61 mg/l which exceeds U.S. EPA's ambient criteria for the protection of freshwater aquatic life of 0.01 mg/l (4-day average) and 0.02 mg/l (1-hour average).

Bromodichloromethane was measured at a maximum of 3.60 μg/l above the CTR standard of 0.56 μg/l.

Chloroform was measured at a maximum of 29.0 μg/l above an OEHHA cancer risk criteria of 1.1 μg/l.

Copper was measured at the tap at a 90th percentile value of 0.060 mg/l (60 μg/l) above the CTR standard of 4.7 μg/l (4-day average) and 6.6 μg/l (1-hour average).

Tetrachloroethene was detected numerous times in 2006. The highest detected concentration was 47 μg/l which exceeds the CTR water quality standard of 0.8 μg/l.

Trichloroethene was detected twice, out of 4-samples, in 2006. The highest detected concentration was 1.1 μg/l which does *not* exceed the CTR water quality standard of 2.7 μg/l.

The **South Turlock** Domestic Water System – May 2006 report, hardness was measured at 86 mg/l.

Arsenic – high value is 9.0 μg/l and the average value is 6.4 μg/l – exceeds an OEHHA PHG of 0.004 μg/l and a USEPA Integrated Risk Information System (IRIS) of 0.02 μg/l – does *not* exceed the MCL of 10 μg/l.

Chlorine was measured at a high of 1.20 mg/l which exceeds U.S. EPA's ambient criteria for the protection of freshwater aquatic life of 0.01 mg/l (4-day average) and 0.02 mg/l (1-hour average).

The **Central Turlock** Domestic Water System – May 2006 report, hardness was measured at 61 mg/l.

Arsenic – high value is 8.0 μg/l and the average value is 6.4 μg/l – exceeds an OEHHA PHG of 0.004 μg/l and a USEPA Integrated Risk Information System (IRIS) of 0.02 μg/l – does *not* exceed the MCL of 10 μg/l.

Chlorine was measured at a high of 1.25 mg/l which exceeds U.S. EPA's ambient criteria for the protection of freshwater aquatic life of 0.01 mg/l (4-day average) and 0.02 mg/l (1-hour average).

The **Hillcrest (Del Rio)** Domestic Water System – May 2006 report, hardness was measured at 55 mg/l.

Arsenic – high value is 5.0 μg/l and the average value is 6.4 μg/l – exceeds an OEHHA PHG of 0.004 μg/l and a USEPA Integrated Risk Information System (IRIS) of 0.02 μg/l – does *not* exceed the MCL of 10 μg/l.

Dibromochloropropane (DBCP) was detected at 0.060 μg/l which exceeds a Public Health Goal of 0.0017 μg/l.

The **City of Davis** Domestic Water System – 2005 report

Arsenic – high value is 6.0 μg/l and the average value is 6.4 μg/l – exceeds an OEHHA PHG of 0.004 μg/l and a USEPA Integrated Risk Information System (IRIS) of 0.02 μg/l – does *not* exceed the MCL of 10 μg/l.

Chromium – high value is 60 μg/l which exceeds the drinking water primary MCL of 50 μg/l.

Nitrate (NO_3) – high value is 47 mg/l which exceeds the primary drinking water MCL of 45 mg/l.

Selenium – high value is 45 μg/l which exceeds the CTR water quality standard of 5 μg/l.

Copper – 90th percentile value is 290 μg/l which exceeds the CTR water quality standard of 11 μg/l (4-day average) and 17 μg/l (1-hour average), assuming a hardness of 120 mg/l.

Lead – 90th percentile value is 2.5 μg/l which exceeds the CTR water quality standard of 0.921 μg/l.

Manganese – the highest detected value was 70 μg/l which exceeds the Secondary drinking water MCL of 50 μg/l.

Specific Conductance (EC) – the highest detected value was 1,500 μmhos/cm which exceeds the agricultural goal of 700 μmhos/cm, the secondary MCL of 900 μmhos/cm.

Boron – the highest detected value was 1,100 μg/l which exceeds the agricultural water quality goal of 700 μg/l.

Bromodichloromethane was measured at a maximum of 0.60 μg/l which exceeds the CTR standard of 0.56 μg/l.

Chloroform was measured at a maximum of 1.7 μg/l which exceeds an OEHHA cancer risk objective of 1.1 μg/l.